Wood Sculpture

Newel post carving on cover by Howard Shanks

The material for this booklet

has been prepared by

Frances Gage

for Sports and Recreation Bureau

Ministry of Community and Social Services

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Carved Figure of Angel, soft wood,
French Canadian, by Jobin.
(Courtesy Royal Ontario Museum)

Contents

Cecil Richards

Introduction

As an art medium, wood has long held an honoured place, certainly since ancient Hellenic civilization. Its history as a craft medium goes even farther back. We are told that cavemen probably favoured wooden tools and weapons just as much as stone. Unfortunately, since wood is not as durable as stone, few traces of its early utilitarian use have survived.

Classic Greek sculpture was often done in wood. Painted or metal-overlaid, relics of these were still to be seen in the second century A. D. Although examples of medieval religious art in wood are limited, there are abundant records of its existence, notably that of Michelangelo and Donatello.

Generations ago, ship-carvers made a proud place for themselves among wood sculptors. Today, their artistry is recognized, chiefly, in the figureheads they carved. Equally superb mementos can be found in pictures of sailing vessels, richly sculpted from stem to stern.

In North America, painted decoration has helped to preserve many native artifacts, as it did the Grecian statues. Totem poles, ceremonial masks and rattles, are among the most familiar; the bulk of these originated on the north-west coast, where the vast cedar forests provided plenty of material. Great movable masks and elaborate house-posts were specialties of this region's Indian culture.

The influence of European sculptors was first felt in Canada about the middle of the seventeenth century. French colonists brought with them to the New World echoes of the Rennaisance tradition. Monseignor de Laval abetted this esthetic movement, founding his école des arts et metiers at Saint Joachim, and staffing it with as many master carvers as he could find. Lacking oak in any significant supply, these wood sculptors turned to white pine, which gave their work simplicity and wiry strength. It was primarily, in the form of architectural trappings and ornaments for churches. Religious figures were finished often by gilding over white paint.

Sculpture has been said to be Quebec's finest talent and a good deal of her creation was in wood. Through the nineteenth century, the focus continued to be ecclesiastical. Contemporary work is classified in two categories, "academic" and "rustic". More recently a third has emerged, "instinctive". The last represents an exciting and lively expression of all that French-Canadian sculptors have learned about the genre.

The initial impulse for artistic activity, brought to

Canada from France, was closely followed by a bridgehead of British culture in Nova Scotia. As the country grew, wood sculpture found its level in the burgeoning civilization. With little of painting's colour appeal, it offers the advantage of a three-dimensional concept. In its modern movement, Canadian sculpture is highly stylized. In wood, very impressive simple forces can be captured.

Among Canada's younger artists, there is an increasing interest apparent in this medium. Work of extreme delicacy, as well as great power, has been carved out of wood by our skilled and accomplished sculptors. This will continue to happen, as others come along with a feeling for its tactile warmth and the imagination to express that feeling. It is to those others, particularly, that this book is addressed.

Properties of wood

Wood sculpture is not an easy art. Not only each variety of wood, but each piece presents different problems. From the outside of a block, it is almost impossible to tell the character of the wood on the inside. Wood is composed of fibrous cell structures the nature of which determines its weight and porosity. Untreated wood varies in weight with each change in humidity. See Figure 1.

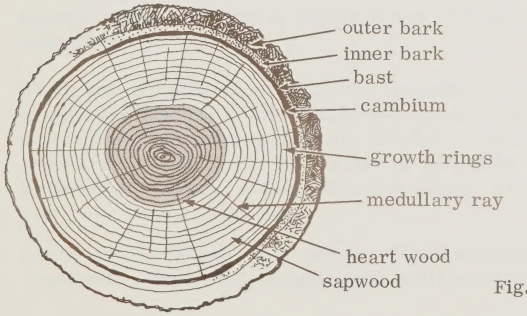


Fig. 1

- Outer bark protects the tree. Inner bark is bark forming.
- Bast carries food from the leaves down the stems to feed the cambium layer and to manufacture wood.
- Cambium layer is a thin layer of cells, capable of division. The cells on one side make wood, the cells on the other bast. Growth rings show the annual growth of the tree. One ring per year. On some species a very definite division can be seen in a single annual ring. The early wood will appear darker than the late wood. Close examination with a hand lens will show thousands of tiny hollow cells, which are some of the pores in the wood fibres.
- Medullary rays store and conduct food horizontally.
- Sapwood carries food from the roots to the leaves.
- Heartwood is largely inactive, but gives strength to the tree.

Seasoning

Wood dries both from the horizontal and vertical vessels. Since the greatest quantity of moisture is conducted by sapwood, there is more loss of moisture from the vertical direction. Therefore, there will be more shrinkage in one direction. This causes stress, which causes cracking. Further stress is caused by the inertia of the dense and comparatively stable heartwood.

To prevent cracking, we must counter this stress by

drying the wood slowly. Lumber companies kiln dry wood in board form. This can be done fairly quickly, but a log presents different problems since the whole tree is more complex than one board.

The best method of seasoning a log you wish to carve is to put it in an airy place, off the ground, away from sunlight, artificial heat and rain. Leave the protective coating of bark on, and seal the raw, cut ends with melted parrafin, white glue, or several layers of paint. Measure the log from the core out, and allow one year for each inch of wood.

Don't be dismayed by the time required! If you put away a log or two each year, you will have a continuing supply after your initial wait. European craftsmen used to season carving wood for fifty years. Perhaps they still do!

Fig. 2

Choosing wood

Procuring carving wood presents a problem these days when so few wood carvers are working. It is amazing how often someone will note a tree being felled, and be concerned that it not be wasted.

Lumber companies usually have stocks of wood, sometimes in chunks, more often in planks. Some lumber companies specialize in fine hardwood and some will laminate blocks for the carver. Lamination consists of gluing together a number of thin boards to build up a large block.

There are many fine Canadian woods available. Coniferous trees are called soft. In the soft woods, pine, some cedars and some spruces are suitable. Deciduous trees are called hard. In hard woods my own order of preference is cherry, walnut, butternut, birch, apple, pear, oak, maple, basswood.

The terms "hard" and "soft" are sometimes misleading. Basswood, a hard wood, is quite soft, while some soft wood cedars are extremely hard. Any wood can be carved, by a skillful and practical person. Soft woods require sharper tools than hard wood. Though tools should always be razor sharp.

When choosing wood in board form, look carefully for the proper grain. Most of the wood cells are arranged vertically in the tree. The structure of the vertical log can be compared to a bundle of broomstraws.

Fig. 3

Planks are cut from logs in various ways. A section cut at right angles to the heart is called quarter cut. This is splendid for flooring, but don't choose it for carving, for no matter in which direction except across the grain, you try to carve it, the fibres will rise up and split in front of your chisel.

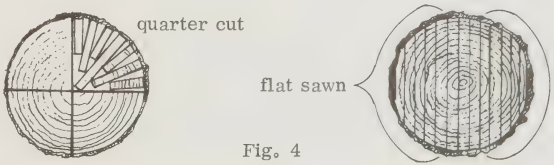


Fig. 4

Away from the heartwood and towards the outside of the log, the boards are flat sawn. These are the best pieces for carving.

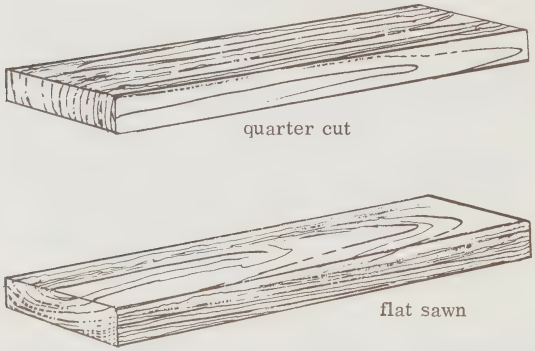


Fig. 5

Beginners are tempted to choose a nice soft pine to start. Strangely enough, hard wood, like walnut, is best for a beginning. Soft woods tend to compress under the chisel. Most of them will not allow cuts across grain.

Many foreign woods are as available as domestic woods. The most common is mahogany, which comes in many varieties. Honduras seems the most suitable. Some African mahoganies, though available in large pieces, have a crazy, crossed grain, hazardous for carving.

Tools

Wood carving tools come in great variety. You can spend a fortune collecting them and end up using three or four constantly, the others occasionally if at all.

Handles are very important. They must be smooth and comfortable in the hand and they must be tough to withstand the blows of the mallet. The mallet should, of course, be sturdy and well balanced in the hand.

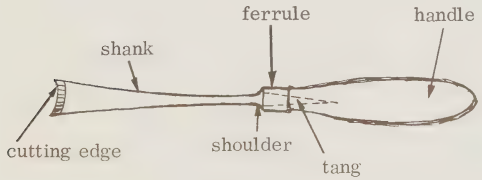


Fig. 6
A COMMON GOUGE

For wood chisels, there seems to be no modern steel to compare with pre-war English, German or Swedish. If you are fortunate enough to find some old carving tools, acquire them if possible. There are good modern tools including such as Buck Brothers (English), Marples (English) and some American tools carried by Sculpture House in New York.

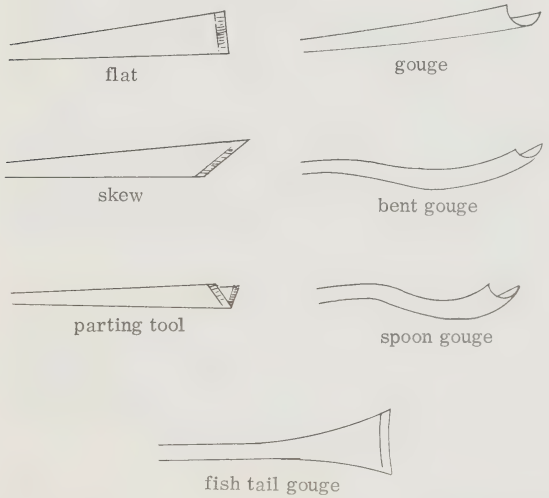


Fig. 7
COMMON CHISELS

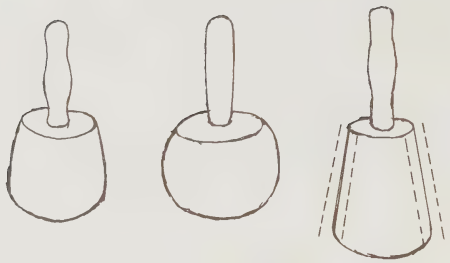


Fig. 8 SOME MALLET SHAPES

Mallets should be hard wood. Ironwood, cherry, ash, maple, hickory, and beech are often used, as are some exotic woods such as lignum vitae, the hardest wood in the world. If mallet and handle are turned from the same piece, the handle will never loosen. Weights vary from a 3 pound lignum vitae down to 10 ounces. A one pound mallet is a good average size.

If you have an acquaintance who has a carving set, try various types of chisels before assembling your own set. It is almost impossible to guess which tools will become your favorites, but for a beginning get a $\frac{1}{2}$" flat, a 3/4" gauge, and a $\frac{1}{4}$" to $\frac{1}{2}$" parting tool, and a mallet which seems a comfortable weight and balance.

Work bench

There are many fine work benches available. You can pay up to $500.00 for European bench with clamps and vises, etc. You don't really need all these accessories until you are better established as a carver. To start though, you do need a sturdy bench or table the proper height and that will withstand lots of vibrations and the odd nick from a chisel. An old heavy table can be used, reinforced if necessary. The top should be the height of your hip bone.

Holding your wood steady is a problem if it's a small piece. A bench screw is one good solution. This is a large screw inserted into a hole drilled in the bottom of the carving, passed through a hole in the bench and held with a washer and a wing nut. Other holding tools are a carpenter's vise with wooden plates and a bench vise.

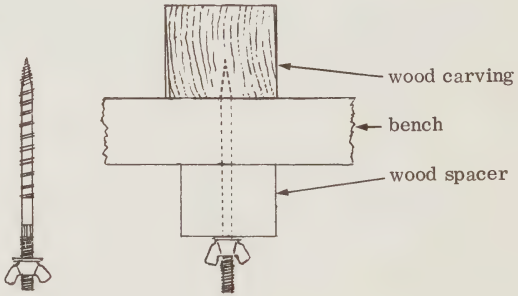


Fig. 9 bench screw

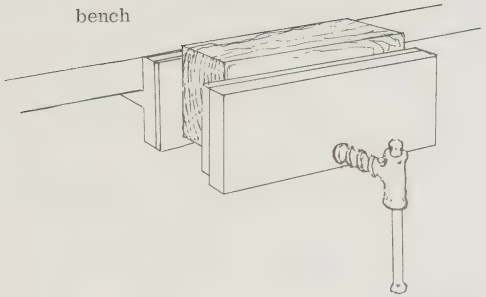
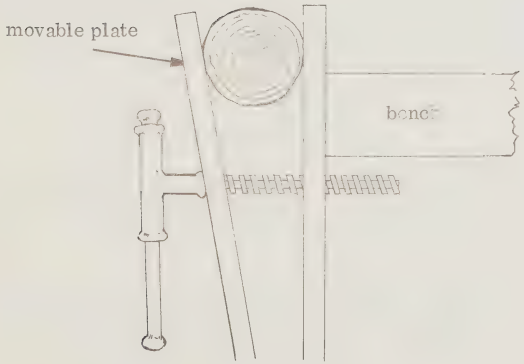


Fig. 10 two types of bench vises



You can make a simple, fairly effective support for a small carving from two short lengths of 2" x 4" attached at right angles with angle irons, and bolted down to the bench. The carving may be held against this resulting V to keep it more steady.

Sharpening

To keep edges razor sharp, several sharpening stones are necessary. Three will do for a start, plus jewellers rouge and a leather strap or chamois. Stones can be either oil or water stones, but, since oil and steel are a better combination than water and steel, the former is better. A wheel grindstone with a medium carborundum is useful too. But a word of caution, a motor driven wheel can overheat a tool and make it lose its temper.

There is a large variety of stones on the market. Most commercial carborundums come with a different texture on each side. One which combines coarse and medium, plus a fine stone such as an Arkansas stone, and a fine slip stone should do for a start.

Stones must be kept well lubricated with oil. Pike oil is good, or a mix of equal parts of kerosene and sewing machine oil. Stones stored in a shallow metal container can be kept immersed in a bath of oil ready for use. Stones used dry without oil will gradually fill with bits of metal from the chisels and become useless.

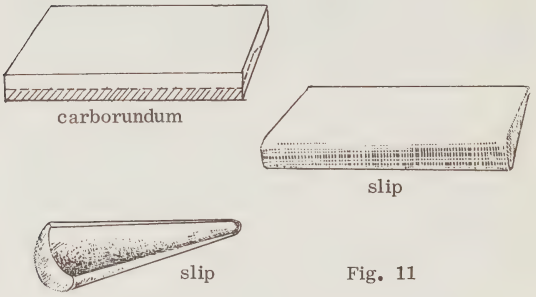


Fig. 11

If you examine your chisels you will see they are sharpened on one side only. The only time that you should depart from this practice is when a burr has developed on the inside edge, or when the tool has been damaged.

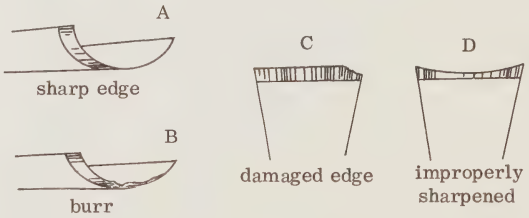


Fig. 12

With edges such as C and D the tool must be ground back to the straight, on a fairly coarse stone, then re-sharpened. Here is where the wheel grinder will save you time! In B, the burr can be eliminated by stroking the inside of the chisel with your fine curved slip, stroking towards the handle.

It will take time to develop skill in sharpening. There is a feel you get only through practice. Blocks of wood can be made with recesses to hold stones. These keep the stones firmly in position and leave both your hands free to guide the tool. The easiest chisel to sharpen is the flat one. Study the bevel of the edge. Place the bevel flush on the stone and move the chisel back and forth, exerting a very even pressure in both directions. Use both hands for better control.

Fig. 13 Sharpening a flat tool.

Sharpening curved chisels (gouges) call for even more skill. Again, study the bevel. Place the chisel on the stone at the angle of the bevel and move it back and forth in a half moon arc. Turn the chisel as you go, from corner to corner, so that each part of the edge receives equal pressure and equal grinding.

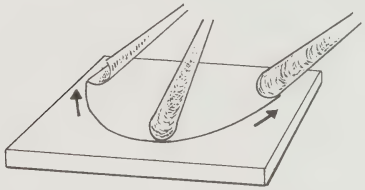


Fig. 14 Sharpening a gouge.

Pick up the chisel from time to time, point the sharpened edge directly towards you and look at the edge in a good light. If you see a glimmer of light along that edge, the chisel is not yet sharp enough. Proper sharpening takes time, but good steel will hold its edge well.

A parting tool is sharpened in a similar fashion to a flat tool except you have two edges to sharpen. Both must be evenly ground. Keep your eye on the bottom of the V and grind very carefully. If you don't, it will develop a flattened area. Towards the end of the sharpening session, pick up the chisel. Hold it, and the fine stone vertically in front of your face. Rest the chisel on its bevel on the stone, and work it, in a circular motion, for the final touch. Then polish

with a leather strap, or jewellers rouge on chamois.

Tools in constant use can be kept on a wall rack although they may rust from dampness. You can keep your tools free of rust by making a cloth case with a separate compartment for each tool. This also keeps them from damaging each other.

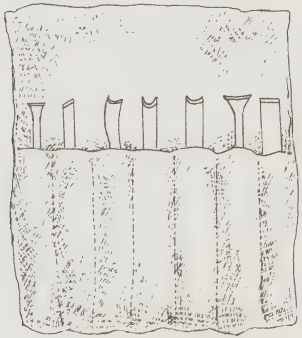
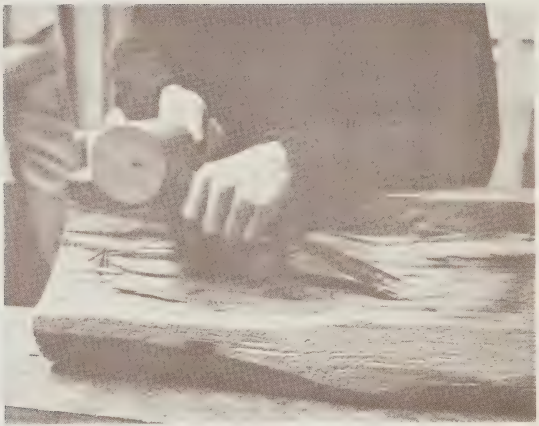


Fig. 15 tool case

If the tool has become rusty, oil it well and leave it standing covered with oil for several hours at least. Wipe with fine steel wool. Be sure to clean off any bits of the steel wool. They could damage your razor edge.

Frances Gage
Torso, walnut



Carving

All you have to do now is learn how to carve with your sharp chisels.

The hand that holds the chisel does light, but important work. It steers only. The chisel should be grasped so that it slips readily through the hand, but so that the hand is ever ready to tighten to keep the chisel from going too far. Watch the knuckles of your chisel hand. If they become white, you are gripping the chisel too hard, you are not controlling it properly and you may be damaging your wrist. The mallet is swung from the whole arm and shoulder. Experience is the only way of learning how hard it must be swung.

Caution If you are not well muscled, practice swinging the mallet for five minute intervals. Begin working for only a few minutes at a time. Tight muscles are sometimes hard to loosen, if you overdo!

Your first project should be something simple, like a bowl. This is a good way to get the feel of your tools and the wood. You will also end up with something useful. Many a project that started out to be a bowl ended up as a salt spoon.

If you can find a thick piece of walnut or mahogany, start with this. Suppose we start with a 2" thick oblong piece of walnut. Examine the end grain to be sure that it is flat sawn. Choose a simple design to fit into this wood. Draw with chalk or pencil the outline of the top, the sides and the bottom or foot.

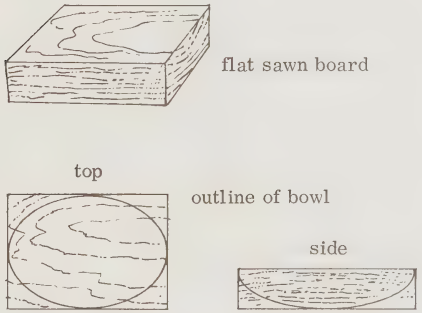


Fig. 16

Start with the inside, since the wood will be difficult to hold firm once the bottom is rounded. When carving

on the flat there will be areas where the grain will present problems, but there will be a minimum of straight grain carving.

Use your largest gauge and begin to cut across the grain where the deepest hollow of the bowl will be. When you have gone down to a depth of an inch, begin to cut from each end towards the middle. The ditch which you have made across the grain will act as a stop cut to prevent you from raising a splinter along the length of the bowl.

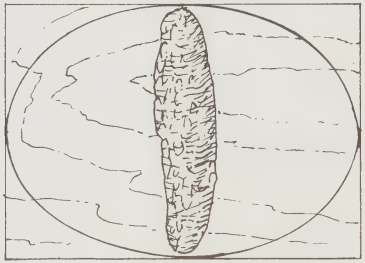


Fig. 17 stop cut

When you have roughed the inside to within, say, $\frac{1}{4}$" of its final depth, begin on the bottom of the bowl. Outline the foot of the bowl if you have not already done so. Then begin to remove the excess. Watch the grain carefully and let common sense tell you in which direction to cut.

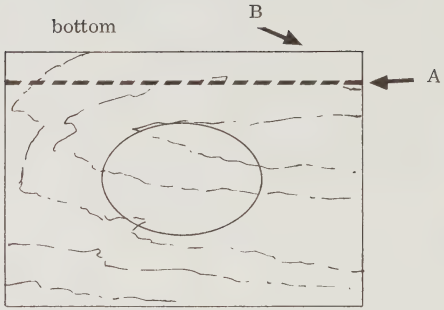


Fig. 18

You can see that if you insert your chisel at point A, going towards the left, you may remove a splinter close to the size of that indicated by the dotted line - this splinter might include part of your upper rim - and you may be on your way towards carving a salt spoon instead of a bowl! If, however, you insert your chisel at point B and cut towards the right, you will remove a chip only, and you will have control of the grain. Always carve with the grain, or across it, never against it.

It is possible to finish the bowl using one gauge and taking progressively smaller chips. Here, a smaller, flatter gauge would be useful.

When you have completed your first project, you will

have developed some feel for the wood and your tools and you are ready for a more complex problem. Let us consider a larger carving from a log.

Some schools of carving execute a design, then search for a piece of wood in which to carve it. It seems a pity, however, not to allow the wood to have more say.

Wood is a living material, it has a shape and an internal structure which should be considered. The wood rather than the carver should dictate the shape to be released from that wood.

Study your log. If you have time, place it somewhere where you will see it often and discover what form lurks inside.

Suppose your log suggests a female torso.

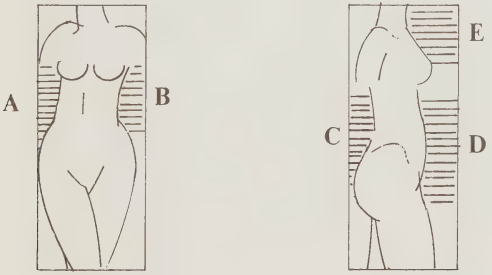


Fig. 19

Begin by drawing the outline of the torso on the established front of the log, then turn to the side and, as nearly as possible, draw the outline of the side view.

Many woods have a light colored layer of sapwood, if you wish a two-toned carving, leave it on, otherwise it is better to remove it before you do your studying and your drawing.

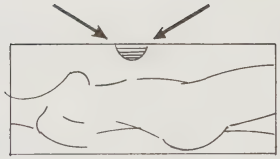
There are obvious large portions of the log which can be removed. If you are using a hardwood, cut across the grain to remove such areas as A, B, C, and D, but going in only as far as $\frac{1}{2}$" to the estimated finished surface. To remove areas such as E, carve lengthwise from the breast towards the neck.

So far, the result will be a square torso, for you have roughed front and side, but there are still 358° to deal with. Go on to rough off the obvious waste areas.

If you have chosen a soft wood for your torso, your method will be different. Carving across the grain of soft wood will usually fray the wood instead of cutting it clean.

Begin by making a deep stop cut in a large waste area. The wood will fray, but the frayed edge will be far from the intended finished surface. Then cut towards the stop cut from both sides.

Failure to make the stop cut, or failure to cut towards it in either direction, could result in splitting off too large a piece.



side

Fig. 20

To proceed from the roughed shape, refine the forms by taking smaller and smaller chips, always working with the grain. If you work against the grain, it will tell you, soon enough.

Suppose you have by mistake driven your chisel against the grain and it has become wedged in. Do not try to pry it out. To avoid damaging the sharp edge, rock the chisel back and forth sideways, pulling steadily to release it.

Chisel marks are often much more attractive on a carving than a smooth surface. Some woods are too crazy of grain to be tooled to the finish and therefore must be sanded.

Rebecca Sisler
"The Dedication", oak

Frances Gage
Free Form, walnut

Sealing

Wood will continue to expand and contract with each change in humidity unless it is sealed.

There are many good wood sealers. Brands seem constantly to disappear to be replaced by something of another name, but almost the same ingredients. Choose a perfectly clear liquid wood sealer and apply it to the entire carving, being liberal at the end grain. After twenty minutes, apply a second coat and wipe off any excess with a clean cloth. After twenty-four hours, polish with several coats of a good ordinary paste wax.

Some modern sealers are somewhat toxic. It is a good idea to use the sealer at the end of your work period and to shut the door behind you.

Logs are subject to cracking, even when well seasoned. Many carvers work by using the cracks as part of the sculpture. Removing the inner core of the log would help to prevent cracking but this is a difficult thing to do.

If a carving cracks after it is finished, the cracks can be made to swell shut by placing the work in a very humid atmosphere for some weeks or months, then sealing it thoroughly. A humid atmosphere can be created in an airtight container by putting wet vermiculite in the bottom. Place the wood up on blocks or bricks to keep it out of the actual moisture and close the container tightly.

Working in wood is a stimulating experience. The material retains its vibrant, living qualities, throughout even the clumsiest of our ministrations, and the removal of each chip reveals a new and exciting pattern. Sculpturing in wood, you will discover, is a whole new world of creativity and one that will provide an exciting and rewarding outlet for your talents.

Ontario

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